

Telicity does not match countability, but dynamicity does

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Overview

- We know that we need sub-lexical features that allow communication among lexical categories (Mourelatos 1978)
- Standardly, verbal telic / atelic is thought to match nominal count / mass through a [boundedness] feature.
- The data are not compatible with this view.
- Instead, we argue that count / mass match dynamic / non-dynamic.

Full paper



Boundedness

- Mourelatos (1978)

- | | | |
|-----|---------------------------|---------------------|
| (1) | a. John washed his leg. | Verbal boundedness |
| | b. John massaged his leg. | |
| (2) | a. many glasses of wine | Nominal boundedness |
| | b. much wine | |

Natural endpoints of eventualities = natural spatial limits in an entity

See also Bach (1986), Krifka (1989), Jackendoff (1991)

- We need some feature common to N and V that explains the communication between categories.

- (3) a. John wrote a poem. Telic
 b. John wrote poetry. Atelic

- Mourelatos (1978: 425):

In exploring analogues of these distinctions in the realm of verbs, linguists have focused mainly on the object of the verb, since it often seems that the object lends its character to the predication as a whole. Thus in “He played a Mozart sonata,” where the object is a count term, we have an event predication, more precisely an accomplishment; but in “He played a little Mozart,” where the object is a mass phrase, we have a process predication, in particular an activity.

Therefore...

- The expectation is that, all things being equal, telic predicates should map to count event nominalisations and atelic predicates should map to mass event nominalisations.

all things being equal = make sure the nominaliser does not introduce its own aspectual definition

However...

- Grimm (2013): no significant correlation in English.
- Gulgowski et al. (2021): no clear correlation in Polish.
- We will show that there is a correlation in Spanish, but not one based on telicity / boundedness.

Roadmap

- Eventivity must be differentiated from dynamicity
- Dynamicity maps to countability
 - dynamic atelic verbs produce count nominalisations
 - non-dynamic verbs produce mass nominalisations
 - simple event nouns are count, simple state nouns are mass
- Divisibility maps to countability
- (Quite likely cumulativity maps to collectivity)

Eventivity vs. dynamicity

- Eventivity (Dowty 1979) divides lexical verbs in two major classes: states and events. In a standard definition of this distinction, events are predicates that express 'happenings' and which contain arguments modifiable by place and manner adverbials (Davidson 1967, Parsons 1990). States, in contrast, are predicates which reject this type of modification.
- (4) a. John learnt French in Paris.
 b. John learnt French easily.
- (5) a. *John knows French in Paris.
 b. *John knows French easily.

- In standard accounts, eventivity is semantically defined as expressing situations that involve some measure of change across time.
 - Maienborn (2003, 2005): dynamicity is not eventivity. Dynamicity is change across time.
 - Davidsonian states (D-states): posture verbs like *sit*, *lie* and *stand* (see also Rothmayr 2009) or verbs that involve inhibiting some types of changes, like *block*, *keep*, *support*, *sleep* or *wait*.
- (6) a. John is sitting in his room.
 b. John is sitting quietly.
- (7) a. John is sleeping in the office.
 b. John is sleeping peacefully.

- D-states are eventive non-dynamic verbs (Fábregas & Marín 2017).
- Jackendoff (1983, 1990): MAINTAIN

- (8)
- a. John controlled the temperature carefully.
 - b. Mary maintains the hands on her pockets.
 - c. The wall supports the ceiling in this room.

Dynamicity is tested through the strong form of Bennet & Partee's (1972) 'Subinterval condition' (SC), which we will label 'Strict Subinterval Condition' (SSC). The SC (see also Dowty 1972, 1979) is a property that predicates meet when they can be truthfully predicated from the whole event and also from any portion of that event.

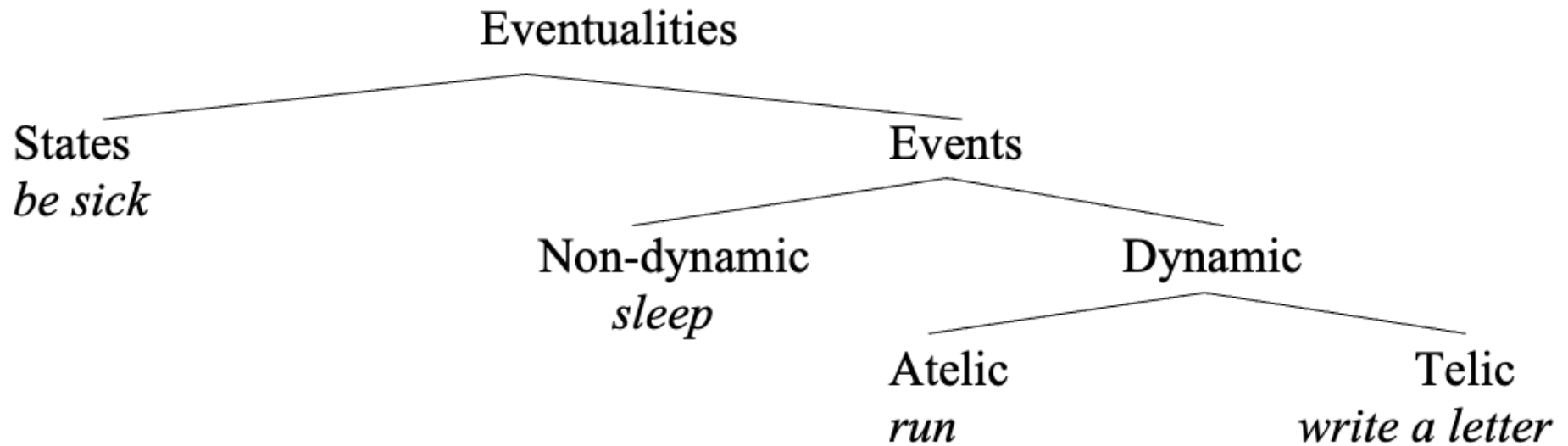
However, it was noted quite early that the SC is problematic for dynamic verbs, that is, those that involve internal changes.

Dowty (1979) points out that in a clearly atelic verb like *walz* (*John waltzed for two hours*) the SC does not strictly apply (see also Taylor 1977 for *chuckle*). The reason is that waltzing involves precisely three steps –fewer steps may qualify as dancing, not waltzing–.

The solutions adopted in the literature include complementing the SC with a granularity parameter that specifies for each verb the size of the temporal intervals that satisfy the SC (as in Champollion 2017) or to restrict the size of intervals by other means (see Hinrichs 1985, Moltmann 1989, Link 1991 or Borik 2006 for different solutions).

- Only non-dynamic verbs –eventive or not– pass the SSC.
- From here it follows incompatibility with other modifiers, like ‘little by little’, ‘fast / slow’ when affecting the process, etc.

Preliminar sub-class division



(just another way to suggest a lexical verb feature hierarchy like the following)

[Telic [Dynamic [Eventive]]]

Does 'telic' correspond to 'count' in the nominal domain?

- Against the received wisdom, the count/mass distinction in the nominal domain is not a reflection of the telic/atelic division.
- As Pelletier (2009) suggests, count/mass should be decomposed in two notions: divisibility and cumulativeness.
- Divisibility, understood as the property that crucially distinguishes count vs. mass nouns, maps into dynamicity, not telicity.
- Telicity should rather be related to the contrast between individual (eg., *fork*) and collective nouns (eg., *silverware*).

- Our claims are restricted to eventuality-denoting nouns, that is, the reading of nouns where they denote an entity that is temporally anchored, be it a state or an event.
 - a) We predict that dynamic atelic verbs should map into count nouns when the nominalisation denotes an eventuality.
 - b) We predict that non-dynamic verbs, which are always non-telic, should map into mass nouns when the nominalisation denotes an eventuality.
 - c) We predict that non-derived nouns denoting dynamic eventualities (that is, Grimshaw's 1990 simple event nouns), should always be count nouns.
 - d) We predict that non-derived nouns denoting non-dynamic eventualities should map into mass nouns.

Nominalisations in Spanish

- We will use *-ción* and *-miento*, or suffix-less cases.
- These are known not to select specific lexical aspect classes (vs., for instance, *-ncia*)

Dynamic atelic V > count N

(31) bailar 'to dance', balancear 'to swing', bambolear 'to sway', caminar 'to walk', desfilar 'to parade', deslizar(se) 'to slide', desplazar(se) 'to displace', gatear 'to crawl', girar 'to spin', marchar 'to march', mover(se) 'to move', pasear 'to stroll', rotar 'to swirl', vagabundear 'to wander', viajar 'to travel', volar 'to fly', zigzaguear 'to zigzag'

(32) baile 'dance', balanceo 'swing', bamboleo 'swaying', caminata 'walk', desfile 'parade', deslizamiento 'sliding', desplazamiento 'displacement', gateo 'crawling', giro 'spinning', marcha 'march', movimiento 'movement', paseo 'stroll', rotación 'rotation', vagabundeo 'wandering', viaje 'trip', vuelo 'flight', zigzagueo 'zigzagging movement'

- (33) a. Los tres bailes sucesivos de María con Juan tuvieron lugar el lunes.
 the three dances successive of María with Juan took place the Monday
 'The three successive dances of María and Juan took place on Monday'
- b. Los tres deslizamientos de tierra tuvieron lugar el lunes.
 the three slidings of land took place the Monday
 'The three landslides took place on Monday'
- c. Los tres viajes del presidente tuvieron lugar en 1984.
 the three trips of.the president took place on 1984
- d. Los tres vuelos de este avión tuvieron lugar antes de 1960.
 the three flights of this plane took place before of 1960
- e. Los muchos {zigzagueos /balanceos} del vehículo tuvieron lugar durante la prueba.
 the many zigzags / swinging of.the vehicule took place during the test
- f. Sus tres desplazamientos por carretera tuvieron lugar la semana pasada.
 his three displacements by road took place the week last
- g. Los tres giros del cohete tuvieron lugar antes del accidente.
 the three spins of.the rocket took place before of.the accident
- h. Las tres marchas contra el gobierno tuvieron lugar en primavera.
 the three marches against the government took place in Springtime

(34) buscar 'to search', explorar 'to explore', indagar 'to investigate', investigar 'to research', observar 'to scrutinise'

(35) búsqueda 'search', exploración 'exploration', indagación 'investigation', investigación 'investigation', observación 'observation'

- (36) a. Las cinco búsquedas desde su ordenador tuvieron lugar el martes.
the five searches from his computer took place the Tuesday
- b. Las distintas exploraciones del Amazonas tuvieron lugar en el siglo XVII.
the different explorations of the Amazon took place in the century XVII
- c. Las numerosas indagaciones de la policía tuvieron lugar el mes pasado.
the many investigations of the police took place the month past
- d. Las muchas investigaciones de Pasteur tuvieron lugar en esta universidad.
the many investigations of Pasteur took place in this university
- e. Sus numerosas observaciones al paciente tuvieron lugar durante el examen.
his many observations about the patient took place during the exam

(37) aullar 'to howl', chillar 'to scream', chirriar 'to screech', graznar 'to caw', gritar 'to shout', ladrar 'to bark', maullar 'to meow', ronronear 'to purr', silbar 'to whistle'

(38) aullido 'howling', chillido 'screaming', chirridos 'screeching', graznidos 'cawing', grito 'shouting', ladrado 'barking', maullido 'meowing', ronroneo 'purring', silbido 'whistling'

- (39) a. Los tres aullidos de la víctima tuvieron lugar a medianoche.
the three howlings of the victim took place at midnight
- b. Escuchamos los tres chillidos de la víctima.
listened the three screamings of the victim
- c. los intensos chirridos de la puerta.
the intense screechings of the door
- d. Los tres graznidos del cuervo tuvieron lugar a medianoche.
the three cawings of the crow took place at midnight
- e. Los muchos ronroneos de mi gato tienen lugar siempre que lo acaricio.
the many purrings of my cat take place whenever it caress
- f. Hubo tres largos silbidos sucesivos.
There were three long whistlings successive

- (45) abuchear 'to boo', tontear 'to flirt', balbucear 'to stutter', bisbisear 'to whisper', campanear 'to move around', canturrear 'to hum', carraspear 'to clear one's throat', castañetear 'to play the castanets', charlotear 'to chatter', chupetear 'to lick repeatedly', contonear(se) 'to wiggle', cuchichear 'to whisper', forcejear 'to struggle', gorgotear 'to gurgle', lloriquear 'to whine', manotear 'to move the hands rapidly', parlotear 'to chatter', taconear 'to click one's heels repeatedly', tartamudear 'to stutter'
- (46) abucheo 'booing', tonteo 'flirting', balbuceo 'stuttering', bisbiseo 'whispering', campaneo 'moving around', canturreo 'humming', carraspeo 'coughing', castañeteo 'playing the castanets', charloteo 'chattering', chupeteo 'licking', contoneo 'wiggling', cuchicheo 'whispering', forcejeo 'struggling', gorgoteo 'gurgling', lloriqueo 'whining', manoteo 'moving the hands', parloteo 'chattering', taconeo 'clicking one's heels', tartamudeo 'stuttering'

- (47) a. Varios abucheos tuvieron lugar durante el concierto.
several booings took place during the concert
- b. Los balbuceos del ponente tuvieron lugar durante toda su intervención.
the stuttering of.the speaker took place during all his speech
- c. Le dio varios chupeteos al helado.
it gave several lickings to.the ice.cream
- d. Hubo numerosos forcejeos con la policía.
there.were many strugglings with the police
- e. Los lloriqueos del niño no cesaron hasta que le compraron el regalo.
the whinings of.the child not stopped until that him bought the present
- f. Los tartamudeos del ponente no terminaron hasta que le quitaron la palabra.
the stutterings of.the speaker not finished until that him took.away the word

Non-dynamic eventive > Mass N

- (55) aguantar ‘to bear’, apoyar ‘to support’, mantener ‘to maintain’, soportar ‘to support’, sostener ‘to support’, sujetar ‘to hold’, sustentar ‘to support’
- (56) conservar ‘to preserve’, cuidar ‘to take care’, defender ‘to defend’, guardar ‘to keep (safe)’, preservar ‘to protect’, proteger ‘to protect’, resguardar ‘to protect’
- (57) controlar ‘to control’, coordinar ‘to coordinate’, dirigir ‘to direct’, gobernar ‘to govern’, presidir ‘to head’, supervisar ‘to supervise’, vigilar ‘to oversee’
- (58) abstenerse ‘to refrain’, contenerse ‘to refrain’, evitar ‘to avoid’, impedir ‘to prevent’, inhibir ‘to inhibit’

- (59) *Las muchas {conservaciones / defensas / protecciones / coordinaciones / direcciones /
the many {conservations / defenses / protections / coordinations / directions
abstenciones / supervisiones} de la ciudad sucedieron en esos años.
abstentions / supervisions} of the city happened in those years
- (60) *Sus muchos {aguantes / apoyos / mantenimientos / soportes / cuidados / controles /
his many supports / supports / maintenances / supports / cares / controls
gobiernos / impedimentos} sucedieron en esos años.
governments / impediments} happened in those years

- Some of these nouns allow for plurals, but not when they are interpreted as denoting an eventuality anchored to the temporal domain. When they denote objects, that is, as participant nouns, the nouns in (61) allow plurals, but in this meaning the properties of the base eventuality are ignored. Typically, in their count reading these nominalisations identify as participants the objects or individuals that perform the event, or are used as instruments to facilitate the event.
- (61) apoyos 'supports', soportes 'supports', sustentos 'supports', conservas 'canned food', cuidados 'procedures', guardas 'guardians', protecciones 'protections', controles 'checkpoints', direcciones 'addresses', gobiernos 'governments', abstenciones 'votes not emitted', impedimentos 'obstacles', inhibiciones 'inhibitions'

Simple event nouns

- Eventive = count
- (63) tormenta 'storm', tempestad 'storm', huracán 'hurricane', tornado 'tornado'
- (64) epidemia 'epidemic', accidente 'accident', terremoto 'earthquake', maremoto 'seaquake', catástrofe 'catastrophe', desastre 'disaster', crisis 'crisis', conflicto 'conflict', follón 'mess', incidente 'incident', sorpresa 'surprise'
- (65) feria 'exhibition', festival 'festival', carnaval 'carnival', serenata 'serenate', espectáculo 'show', discurso 'speech', torneo 'tournament', campeonato 'championship', cavalgata 'cavalcade', carrera 'race', partido 'match'
- (66) broma 'joke', clase 'class, teaching session', congreso 'congress', coloquio 'colloquium', debate 'debate', guerra 'war', batalla 'battle', golpe (de Estado) 'coup d'état', tregua 'truce', huelga 'strike', motín 'moutiny', boicot 'boycott'

- (68)
- a. Muchas **guerras han** tenido lugar en Europa.
many wars have taken place in Europe
 - b. *Mucha guerra ha tenido lugar en esta casa.
much nuisance has taken place in this house
 - c. Muchas crisis tuvieron lugar por esta razón.
Many crisis took place for this reason
 - d. *Mucha crisis tuvo lugar por esta razón.
much crisis took place for this reason
 - e. Muchas sorpresas tuvieron lugar durante ese curso.
many surprises took place during that academic.year
 - f. *Mucha sorpresa tuvo lugar durante ese curso.
much bewilderment took place during that academic.year

- Simple event nouns also lose the capacity to combine with modifiers that receive a temporal extension reading when mass.

- (69) a. muchas largas guerras
many long wars 'many wars that lasted long'
b. *mucha larga guerra
much long nuisance

The possibility to denote a dynamic situation correlates with the possibility of acting as a count noun. This fact would be mysterious if countability mapped to telicity

- Simple state noun = mass
- (70) anarquía 'anarchy', caos 'chaos', cólera 'anger', congoja 'anguish', deleite 'pleasure', desbarajuste 'mess', desorden 'mess', dicha 'joy', dolor 'pain', fiebre 'fever', furor 'enthusiasm', gozo 'joy', hambre 'hunger', ira 'wrath', júbilo 'jubilation', lástima 'pity', miedo 'fear', orden 'order', pánico 'panic', pasión 'passion', pavor 'dread', paz 'peace', pena 'pity', pereza 'sloth', rabia 'anger', regocijo 'joy', sed 'thirst'

(71) *varias anarquías 'several anarchies', *varios caos 'several chaos', *varios desbarajustes 'several messes', *numerosas fiebres 'many fevers', *muchas hambres 'many hungers', *muchas sedes 'many thirsts', *muchas perezas 'many sloths'

- As in the case of D-state nouns, if the noun does not denote an eventuality but a participant related to it, plurals might be possible: in particular this happens often with the use of these nouns to denote the instrument or causer of the state, as in the cases of (72).

(72) congojas 'things that cause pity', deleites 'things that cause pleasure', dolores 'things that hurt', miedos 'things that cause fear', pasiones 'things that trigger passion', penas 'things that cause pity'

Divisability and cumulativity

$$(79) \quad \text{Divisive}(P) = \forall x[P(x) \rightarrow \forall y[y > x \rightarrow P(y)]]$$

$$(80) \quad \text{Cumulative}(P) = [P(x) \& P(y) \rightarrow P(x \oplus y)]$$

Typical mass nouns are both divisible and cumulative ('water').

Typical count nouns are both non-divisible and non-cumulative ('chair')

- Pelletier (2009) notes that cumulativity and divisibility must be both defined for mass and count nouns, because of the existence of a set of nouns that Pelletier calls 'mass nouns' which are cumulative but non-divisible:

(81) furniture, cutlery, clothing, equipment, jewelry, silverware, footwear...

(A subtype of collective nouns)

Divisibility is dynamicity

- Let us start by examining what dynamicity means for a verbal predicate. As we presented in § 2, dynamicity as opposed to eventivity is a property of those verbal predicates which do not satisfy the strict subinterval condition. What this means is that in a dynamic predicate it is not true that any temporal interval –no matter how small– describes the same situation as the predicate itself.

Remember that, for instance, in the temporal interval occupied by a 'writing' event there are instants small enough that one does not satisfy the description of the predicate, that is, instants where one cannot verify whether the agent is producing text in the form of physical marks on a surface.

- The main property of nouns is that they do not map directly to a temporal axis, but rather to a spatial axis where the main property is their physical extension.
- However, the 'strict subinterval' property can still be defined in the nominal domain, specifically as the mereological properties of the object that is denoted by that noun.
- Imagine that the object denoted by the noun is such that within the whole spatial interval that it occupies any two subintervals, no matter how small, will produce the same description. In this case we are used to calling those subintervals 'portions', but beyond the terminological choice the subinterval property applies: any two portions, no matter how small, will be identical to each other, and still satisfy the description of the whole nominal predicate, the name that we give to the substance that occupies the whole spatial interval.

- From this perspective, it is clear that the predicates that will satisfy the strict subinterval condition because they are 'non-dynamic' correspond to the standard description of divisible nouns in the literature (Link 1983, Nicolas 2008), like *water*, *sugar* or *air*. In the same way that the predicate 'water' is divisible, a non-dynamic predicate like 'wait' is divisible: any instant of waiting is itself waiting, just like any portion of water is water.

- At the same time, 'dynamic' nominal predicates will be those such that there are at least some subintervals –some portions– which will not count as the same type of entity as the whole noun, that is, non-divisible nouns. If we take nouns like *chair*, *table*, *(one) apple*, and the other cases of non-divisible nouns it is clear that most subparts of their physical extension will not allow the same predicate description. There are some parts of a chair that we may be able to remove and still call the object a chair, but definitely a single leg of a chair would never be called 'chair'.

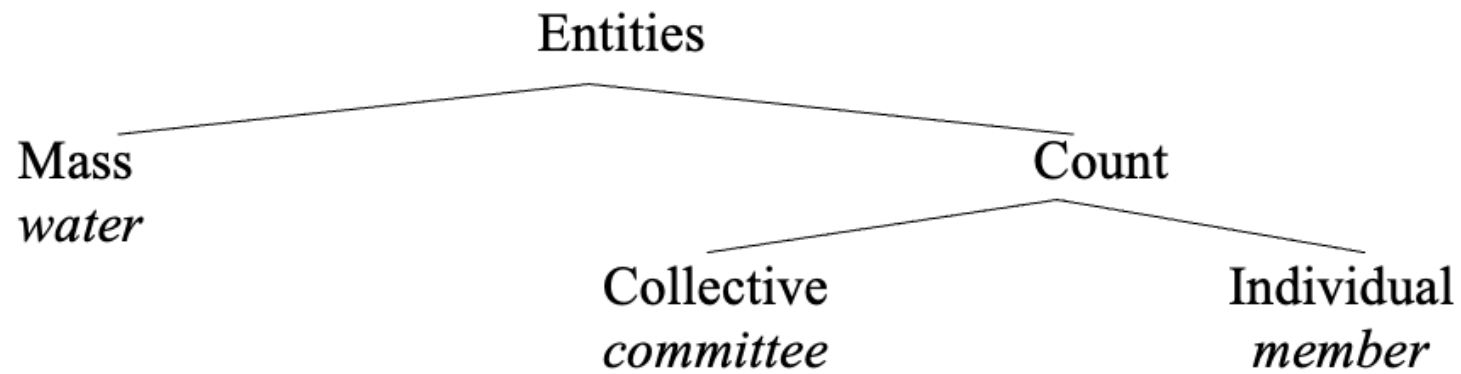
Cumulativity = telicity

(83) furniture, cutlery, clothing, equipment, jewelry, crockery, silverware, footwear

Their Spanish translation, when it can be done with a single lexical noun, is provided in (84).

(84) mobiliario 'furniture', cubertería 'cutlery, silverware', ropaje 'clothing', equipamiento 'equipment', vajilla 'crockery', calzado 'footwear'

(88)



- Telicity can be seen as the absence of cumulativity in the verbal domain. Within non-divisible predicates, we have two types: some act like 'agreggates' of 'change atoms', and additional 'change atoms' can be added to the aggregate without changing its nature in the same way that one can also add additional forks and knives to 'cutlery' and still call it 'cutlery'. These predicates that are cumulative are atelic.
- 'Running' is not divisible because, down to some subintervals, the event is not 'running'. There are therefore distinct portions that minimally count as 'running', but we can add additional portions of 'running' and –assuming temporal adjacency, just as we need to assume spatial adjacency in the cutlery case– still call it 'running'. Therefore, an atelic predicate is a non-divisible, cumulative predicate. Collective nouns are the equivalent of atelic events in the nominal domain.

- Consider now a telic predicate like 'write a book'. This event is non-divisible because there are parts of writing a book that do not count as writing a book, but it is additionally also non-cumulative, because it does not denote an 'aggregate event'. Even if somehow the two events are temporally adjacent, adding to 'write a book' another minimal interval that also counts as 'write a book' does not produce 'write a book', but 'write two books'. This is exactly parallel to what happens when one adds the minimal entity that counts as 'chair' to another minimal entity that counts as 'chair': even if spatially adjacent, the whole cannot be described as one chair.

- (There are some independent differences between Spanish and English collective nouns; ask me in the question period if interested)

Conclusion

[Telic [Dynamic [Eventive ...]]] V
[Collective [Count [?? ...]]] N

Sub-lexical features

[Non-cum [Divisibility [Sortal distinction ...]]]

References



Appendix: English collectives

- The nouns in (83) in English, in contrast to their equivalents in Spanish, are considered mass nouns, not collective count nouns. The obvious reason is that they resist in English combination with cardinals and the plural form:

(90)*two {furnitures / clothings / silverwares / equipments...}

This means that English grammaticalises these cumulative but non-divisible nouns as mass (see Barner & Snedeker 2005 for the same conclusion), while Spanish maps them into the individual / collective distinction.

In Spanish, then, the nominal and the verbal domains are almost completely parallel in that divisible / non-divisible corresponds to one contrast and cumulative / non-cumulative corresponds to the other, dependent on non-divisible, while in English any noun that is cumulative maps to a mass noun. As a consequence, in English the result is that one dimension of countability maps to dynamicity and another dimension maps to telicity, while in Spanish the division is stricter and mass nouns can be directly defined only by taking into account divisibility, so that cumulativity is available to define a second division among count nouns.

English count 'collective' nouns may trigger plural agreement in English, but not in Spanish, suggesting that English uses some notion of 'atomic plurality' to define its count collective nouns, while Spanish does not inherently define collectives as plurals.

- (91) a. The orchestra are tuning their instruments.
b. The staff disagree on the proposal.
- (92) a. *La orquesta están afinando sus instrumentos.
the orchestra are.3pl tuning their instruments
b. *La plantilla disiente-n de la propuesta.
the staff disagree-3pl on the proposal

- The fact that non-divisible, cumulative nouns map in English with mass nouns explains, we believe, that Mourelatos (1978) and the other authors that followed him proposed that countability directly maps to telicity in the verbal domain. However, the Spanish facts argue in favour of treating divisibility and cumulativity as distinct properties.

- Interestingly, this type of variation suggests that divisibility and cumulativeness are (perhaps universal) cognitive properties that languages grammaticalise in their verbal and nominal system.
- The variation can be taken as evidence that the concept-grammatical feature mapping is not direct, and –within perhaps some closed range of options– languages have some room for optionality in terms of how each concept is mapped to grammar.
- Presumably, once a choice has been made, it will have consequences for other domains. An obvious additional difference between Spanish and English that comes to mind in this context is the role that aspectual and temporal differences have in the Spanish verbal system, with distinct forms for the perfective and the imperfective.